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EXAMINER

TANG, KIET G

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,670	Applicant(s) NEKOVET ET AL.	
	Examiner KIET TANG	Art Unit 2469	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-7, 10-17 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-7, 10-17, and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 3-7, 10-17, and 21-25 are pending.
2. Claims 1-2, 8-9, and 18-20 have been cancelled.

Response to Amendment

3. In response to Applicant's amendment filed on 04/19/2011, the objections of claim 15 have been withdrawn.

Response to Arguments

4. Applicant's arguments filed on 04/19/2011 have been considered but they are moot in view of the new ground(s) of rejection.

Claim Objections

5. **Claims 3-7, 10-17, 21-22, and 25** are objected to because of the following informalities:
6. **Claim 3** recites, "...they xxx..." in line 16. For clarity, it is suggested to use actual limitations "the aggregated compressed data files" rather than the pronoun "they".

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7. **Claims 4-7** recite “A method” in line 1 which should be written as “The method” as referred to “A method” in claim 3, line 1, for antecedent basic claim reason.
8. **Claim 10** recites “Relay device” in line 1 which should be written as “A relay device” to provide proper antecedent basis for “the relay device” in line 15.
9. **Claims 11-16** recite “Relay device” in line 1 which should be written as “The relay device” as referred to a “Relay device” in claim 10, line 1, for antecedent basic claim reason.
10. **Claim 12** is missing a “.” at the end of the claim.
11. **With regard to claim 17**, a colon “:” is required to be inserted between the preamble and the body of the claim for clarity.
12. **Claims 21-22** recite “A network” in line 1 which should be written as “The network” as referred to “A decentralised communications network” in claim 17, line 1, for antecedent basic claim reason.
13. **Claim 25** recites “received **at at** least one of the servers” in line 2.
14. Appropriate correction is required.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. **Claims 3-4, 7, 10-12, 15-16, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen et al. (Pub. No.: US 2003/0123451 A1), hereinafter Nielsen, in view of Sasaki et al. (Patent No.: US 6,434,623 B1), hereinafter Sasaki, and further in view of Mitzenmacher (Pub. No.: US 2003/0005036 A1), hereinafter Mitzenmacher.**

17. **With respect to claim 3, Nielsen teaches a method of transmitting data over a decentralised network** (figure 1, [0026-0028], [0047], [0049], and [0063], transmitting ATM cells to other relay interfaces over ATM connection), the method comprising: receiving a plurality of **data files at a relay device** (figure 5, [0037], an interface 116 comprising control logic circuits receives packets 20 arising from one or more data streams 14 on an incoming data link 15), each of the data files having a respective predetermined expiry time ([0038] and [0044], each of the packets have a max time),

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processing the data in the received plurality of data files by aggregating those of the received data files having a common predetermined expiry time ([0047] and [0049], ATM cells having the same expiry time), and transmitting the aggregated data files to a plurality of **similar relay devices** over the decentralised network (figure 1, [0026-0028], [0047], [0049], and [0063], transmitting ATM cells to other relay interfaces over ATM connection), and wherein each individual aggregated data file has a predetermined expiry time which is equal to the common predetermined expiry time of the received data files included in that individual aggregated data file ([0038], [0044], [0047] and [0049], each packet has a max time which is equal to the same predetermined expiry time of the received data files included in that individual aggregated data file), and wherein the aggregated data files are only forwarded if they have not exceeded their predetermined expiry time ([0026-0028], [0047], [0049], and [0063], upon the expiry time being reached, the record made in block 220 is used to identify the connection with which the partially filled cell is associated together with any other connections having partially filled cells sharing the same expiry time (block 230). Then the group of one or more partially filled cells which share the expiry time are sent on the appropriate connections (block 232)).

18. Although **Nielsen** teaches a plurality of data files, **Nielsen** does not explicitly teach at least one of the data files being a compressed data file. However, **Sasaki** teaches at least one of the data files being a compressed data file (column 2, lines 29-52, receiving data files including a compression format of data), to create a plurality of

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aggregated compressed data files (column 2, lines 29-52, integrating data files, data file including compressed data file).

19. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Sasaki**, at least one of the data files being a compressed data file, to create a plurality of aggregated compressed data files, into the teachings of **Nielsen**, in order to minimizing a load of the communication channel (**Sasaki**, column 1, lines 55-62), resulting in a more efficient data transferred between systems.

20. The combination of **Nielsen** and **Sasaki** does not explicitly teach the technique applied to the data is a Bloom filter process. However, **Mitzenmacher** teaches the technique applied to the data is a Bloom filter process ([0010], (1) fixing a compression size for transmission of the Bloom filter data array at each Web server; (2) choosing the number of hash functions and the array size so that the Bloom filter data array minimizes the rate of false positives when it is compressed down to the fixed compression size; and (3) broadcasting the compressed Bloom filter data array to neighboring Web servers whenever there is a predetermined change in the contents of its cache memory).

21. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Mitzenmacher**, the technique applied

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to the data is a Bloom filter process, into the teachings of **Nielsen** and **Sasaki**, in order to reduce false positives in a network having distributed servers each storing information in cache memory, resulting in less message traffic and to decrease user perceived fetch latency (**Mitzenmacher**, [0006] and [0010]).

22. **With respect to claim 4, Nielsen** teaches data files received by a relay device having the same expiry time are aggregated into a single data file for further dissemination ([0026-0028], [0037-0047], [0049], and [0063], packets having the same expiry time are aggregated into a record for further dissemination).

23. **With respect to claim 7, Nielsen** teaches at least some of the relay devices receive data from associated data generation (figure 5, [0037], an interface 116 comprising control logic circuits receives packets 20 arising from one or more data streams 14 on an incoming data link 15).

24. **Nielsen** does not explicitly teach receive compressed data from associated data generation and compression means. However, **Sasaki** teaches receive compressed data from associated data generation and compression means (column 2, lines 29-52, receiving data files including a compression format of data).

25. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Sasaki**, receive compressed data from

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associated data generation and compression means, into the teachings of **Nielsen**, in order to minimizing a load of the communication channel (**Sasaki**, column 1, lines 55-62), resulting in a more efficient data transferred between systems.

26. **With respect to claim 10, Nielsen** teaches **relay device** (figure 1, [0026], interface 16) comprising:

a receiver for receiving a plurality of **data files** (figure 5, [0037], an interface 116 comprising control logic circuits receives packets 20 arising from one or more data streams 14 on an incoming data link 15), each of the data files having a respective predetermined expiry time ([0038] and [0044], each of the packets have a max time), an aggregation processor for processing the data in the received plurality of data files by aggregating those of the received data files having a common predetermined expiry time ([0037-0038], [0047] and [0049], interface 116 comprising control logic circuits aggregates the received data files having a same expiry time), and **a transmitter** for selecting a plurality of similar relay devices and transmitting the aggregated data files to the selected relay devices over a decentralized network (figure 1, [0026-0029], [0047], [0049], and [0063], outgoing cell assembler 22 transmits ATM cells to other relay interfaces over ATM connection),

means for determining a predetermined expiry time for each aggregated data file ([0037-0038] and [0044], interface 116 determines a max time for each packet), the predetermined expiry time for said each aggregated data file being equal to the common predetermined expiry time of the received plurality of data files included in that

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aggregated data file ([0038], [0044], [0047] and [0049], each packet has a max time which is equal to the same predetermined expiry time of the received data files included in that aggregated data file), and selecting for transmission only those aggregated data files that have not exceeded their expiry time ([0026-0028], [0047], [0049], and [0063], upon the expiry time being reached, the record made in block 220 is used to identify the connection with which the partially filled cell is associated together with any other connections having partially filled cells sharing the same expiry time (block 230). Then the group of one or more partially filled cells which share the expiry time are sent on the appropriate connections (block 232));

wherein the relay device has a configuration to handle the data (figure 5, [0037], an interface 116 comprising control logic circuits receives packets 20 arising from one or more data streams 14 on an incoming data link 15).

27. Although **Nielsen** teaches a plurality of data files, **Nielsen** does not explicitly teach at least one of the data files being a compressed data file. However, **Sasaki** teaches at least one of the data files being a compressed data file (column 2, lines 29-52, receiving data files including a compression format of data), to create a plurality of aggregated compressed data files (column 2, lines 29-52, integrating data files, data file including compressed data file).

28. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Sasaki**, at least one of the data files

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being a compressed data file, to create a plurality of aggregated compressed data files, into the teachings of **Nielsen**, in order to minimizing a load of the communication channel (**Sasaki**, column 1, lines 55-62), resulting in a more efficient data transferred between systems.

29. The combination of **Nielsen** and **Sasaki** does not explicitly teach to handle the data in the form of Bloom filters. However, **Mitzenmacher** teaches to handle the data in the form of Bloom filters ([0010], (1) fixing a compression size for transmission of the Bloom filter data array at each Web server; (2) choosing the number of hash functions and the array size so that the Bloom filter data array minimizes the rate of false positives when it is compressed down to the fixed compression size; and (3) broadcasting the compressed Bloom filter data array to neighboring Web servers whenever there is a predetermined change in the contents of its cache memory).

30. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Mitzenmacher**, to handle the data in the form of Bloom filters, into the teachings of **Nielsen** and **Sasaki**, in order to reduce false positives in a network having distributed servers each storing information in cache memory, resulting in less message traffic and to decrease user perceived fetch latency (**Mitzenmacher**, [0006] and [0010]).

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31. **With respect to claim 11**, this claim recites a method of claim 4, and it is rejected for at least the same reasons.

32. **With respect to claim 12**, **Nielsen** teaches disseminating a plurality of such aggregate data files having different expiry times ([0038-0046], disseminating a plurality of such aggregate data files having different max times).

33. **With respect to claim 15**, this claim recites a method of claim 7, and it is rejected for at least the same reasons.

34. **With respect to claim 16**, although **Nielsen** teaches having analysis means for analysing incoming aggregate data files to capture data contained therein ([0038-0045], interface 116 inspects the packet's header to determine which ATM virtual connection it should be forwarded to).

35. **With respect to claim 23**, **Nielsen** teaches the data that is received at the relay device from different sources at a same time frame is aggregated by the process so that in each said time frame only a single data file is transmitted by the relay device ([0037-0047], interface 116 receives data from different sources at a same time frame is aggregated by the process so that in each time frame only a single record is transmitted).

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36. **Nielsen** does not explicitly teach a Bloom filter process. However, **Mitzenmacher** teaches a Bloom filter process ([[0010], (1) fixing a compression size for transmission of the Bloom filter data array at each Web server; (2) choosing the number of hash functions and the array size so that the Bloom filter data array minimizes the rate of false positives when it is compressed down to the fixed compression size; and (3) broadcasting the compressed Bloom filter data array to neighboring Web servers whenever there is a predetermined change in the contents of its cache memory)).

37. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Mitzenmacher**, a Bloom filter process, into the teachings of **Nielsen** and **Sasaki**, in order to reduce false positives in a network having distributed servers each storing information in cache memory, resulting in less message traffic and to decrease user perceived fetch latency (**Mitzenmacher**, [0006] and [0010]).

38. **With respect to claim 24**, this claim recites the method of claim 23, and it is rejected for at least the same reasons.

39. **Claims 5-6, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen, Sasaki, Mitzenmacher, and further in view of Van Renesse (Patent No.: US 6411967 B1), hereinafter Van Renesse.**

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40. With respect to claim 5, the combination of **Nielsen, Sasaki**, and **Mitzenmacher** teaches the aggregated compressed data files are transmitted as set forth in the claim above.

41. The combination of **Nielsen, Sasaki**, and **Mitzenmacher** does not explicitly teach data files are transmitted using an epidemic dissemination process. However, **Van Renesse** teaches data files are transmitted using an epidemic dissemination process (column 1, lines 24-42, the member nodes may gossip among themselves, to ensure that each node receives the most recent updates).

42. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Van Renesse**, data files are transmitted using an epidemic dissemination process, into the teachings of **Nielsen, Sasaki**, and **Mitzenmacher**, in order to ensure that data files are propagated across the membership (**Van Renesse**, column 7, lines 35-45).

43. With respect to claim 6, **Nielsen** teaches relay device stores each data file received as set in the claim above.

44. Nielsen does not explicitly teach compares subsequently received data files with those already stored, and suspends the aggregating and forwarding process for any duplicate data files identified. However, **Van Renesse** teaches compares subsequently

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received data files with those already stored, and suspends the aggregating and forwarding process for any duplicate data files identified (column 3, lines 55-67, column 4, lines 1-10, messages with version number and if the version number of new message is bigger than the version number on base, then store the new message and if the version number is smaller than the version number on base, then ignores the message (suspend process)).

45. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Van Renesse**, compares subsequently received data files with those already stored, and suspends the aggregating and forwarding process for any duplicate data files identified, into the teachings of **Nielsen**, in order to ensure that data files are propagated across the membership (**Van Renesse**, column 7, lines 35-45).

46. **With respect to claim 13**, this claim recites a method of claim 5, and it is rejected for at least the same reasons.

47. **With respect to claim 14**, **Nielsen** teaches data storage means for storing each data file received as set in the claim above.

48. **Nielsen** does not explicitly teach processing means for comparing each stored data file with those subsequently received, and wherein the transmission means is

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arranged to only transmit those received data files that are not duplicated in the data storage means. However, **Van Renesse** teaches processing means for comparing each stored data file with those subsequently received, and wherein the transmission means is arranged to only transmit those received data files that are not duplicated in the data storage means (column 3, lines 55-67, column 4, lines 1-10, messages with version number and if the version number of new message is bigger than the version number on base, then store the new message and if the version number is smaller than the version number on base, then ignores the message (suspend process)]).

49. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Van Renesse**, processing means for comparing each stored data file with those subsequently received, and wherein the transmission means is arranged to only transmit those received data files that are not duplicated in the data storage means, into the teachings of **Nielsen**, in order to ensure that data files are propagated across the membership (**Van Renesse**, column 7, lines 35-45).

50. **Claims 17, 21-22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Renesse, in view of Nielsen, and further in view of Mitzenmacher.**

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51. With respect to claim 17, Van Renesse teaches a decentralised communications network in which a plurality of **servers** collectively maintain a database that records event reports (figure 1, column 1, lines 24-43, decentralized network with each node maintaining replicated management information base (database)), the plurality of servers forming an overlay network and intercommunicating using a common messaging strategy based on a publisher forwarding scheme running over the overlay network (column 1, lines 6-43, network using messaging scheme and node sends out update message to other nodes (publisher forwarding scheme)), the servers having means to aggregate data messages (column 6, lines 21-27, combining two update messages into a composite update message) and being received from one or more other servers to create one or more aggregate data files (column 1, lines 24-42, column 4, lines 12-29, a node receives messages from other member nodes, the node compares and updates messages to create one or more aggregate messages), and to broadcast the aggregate data file to one or more of the other servers (abstract, nodes gossip among themselves to update the nodes), at least one of the servers having means to generate data files in response to specific events files (column 6, lines 21-27, aggregating update messages), and means to aggregate the data files so generated with the data files received from the other servers (column 3, lines 55-67, column 4, lines 1-10, each node update its node by its own or by update message from other nodes),

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the servers have means to modify the aggregate data files they receive before broadcasting them (column 3, lines 55-67, column 4, lines 1-29, updating messages via version number before sending to other nodes),

wherein each individual aggregate data file has the aggregate data messages included in that data file (column 4, lines 1-29, up-to-date message data file has the aggregate data messages),

the servers have means for forwarding only the data files (column 3, lines 55-67, column 4, lines 1-29, nodes sending messages to other nodes), using an epidemic dissemination process (abstract, nodes gossiping among themselves).

52. Although **Van Renesse** teaches aggregate data messages, **Van Renesse** does not explicitly teach aggregate data messages having a common predetermined expiry time. However, **Nielsen** teaches aggregate data messages having a common predetermined expiry time ([0047] and [0049], ATM cells having the same expiry time), wherein each individual aggregate data file has a predetermined expiry time which is equal to the common predetermined expiry time of the aggregate data messages included in that data file ([0038], [0044], [0047] and [0049], each packet has a max time which is equal to the same predetermined expiry time of the received data files included in that individual aggregated data file), and forwarding only the data files that have not exceeded their predetermined expiry times ([0026-0028], [0047], [0049], and [0063], upon the expiry time being reached, the record made in block 220 is used to identify the connection with which the partially filled cell is associated together with any

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other connections having partially filled cells sharing the same expiry time (block 230).

Then the group of one or more partially filled cells which share the expiry time are sent on the appropriate connections (block 232)).

53. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Nielsen**, aggregate data messages having a common predetermined expiry, wherein each individual aggregate data file has a predetermined expiry time which is equal to the common predetermined expiry time of the aggregate data messages included in that data file, and forwarding only the data files that have not exceeded their predetermined expiry times, into the teachings of **Van Renesse**, in order to control the dispatch of data to a plurality of destinations on a telecommunication network (**Nielsen**, [0008]), resulting in a more efficient data transferred between systems.

54. Although the combination of **Van Renesse** and **Nielsen** teaches aggregate data files, the combination of **Van Renesse** and **Nielsen** does not explicitly teach compressed data messages and compressed Bloom filter aggregate data files. However, **Mitzenmacher** teaches compressed Bloom filter data files ([0010], (1) fixing a compression size for transmission of the Bloom filter data array at each Web server; (2) choosing the number of hash functions and the array size so that the Bloom filter data array minimizes the rate of false positives when it is compressed down to the fixed compression size; and (3) broadcasting the compressed Bloom filter data array to

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neighboring Web servers whenever there is a predetermined change in the contents of its cache memory).

55. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to combine the teachings of **Mitzenmacher**, the technique applied to the data is a Bloom filter process, into the teachings of **Van Renesse** and **Nielsen**, in order to reduce false positives in a network having distributed servers each storing information in cache memory, resulting in less message traffic and to decrease user perceived fetch latency (**Mitzenmacher**, [0006] and [0010]).

56. **With respect to claim 21, Van Renesse** teaches wherein individual servers have means for deleting from the data that is to be forwarded any data that has been previously received and forwarded by the same device (column 6, lines 30-37, deleting overlapping messages).

57. **With respect to claim 22, Van Renesse** teaches wherein individual servers have means for extracting data required by a processing device associated with the server (column 3, lines 55-67, column 4, lines 1-10, updating replicate management information base with update message with information In order to update base with update message, it needs to extract the date contained in the message).

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58. **With respect to claim 25**, this claim recites the method of claim 23, and it is rejected for at least the same reasons.

Conclusion

59. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIET TANG whose telephone number is (571) 270-7193. The examiner can normally be reached on Monday - Friday 8:00AM-5:00PM.

60. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, IAN MOORE can be reached on (571) 272-3085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

61. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/K. T./

Examiner, Art Unit 2469

/IAN N. MOORE/

Supervisory Patent Examiner, Art Unit 2469